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AB An efficient expression system for **recombinant collagens** would have numerous scientific and practical applications. Nevertheless, most recombinant systems are not suitable for this purpose, as they do not have sufficient amounts of prolyl 4-**hydroxylase** activity. Pro-alpha 1 chains of human type III collagen expressed in insect cells by a baculovirus vector are reported here to contain significant amounts of 4-**hydroxyproline** and to form triple-helical molecules, although the Tm of the triple helices was only about 32-34 degrees C. Coexpression of the pro-alpha 1(III) chains with the alpha and beta subunits of human prolyl 4-**hydroxylase** increased the Tm to about 40 degrees C, provided that ascorbate was added to the culture medium. The level of expression of type III procollagen was also increased in the presence of the recombinant prolyl 4-**hydroxylase**, and the pro-alpha 1(III) chains and alpha 1(III) chains were found to be present in disulfide-bonded molecules. Most of the triple-helical collagen produced was retained within the insect cells and could be extracted from the cell pellet. The highest expression levels were obtained in High Five cells, which produced up to about 80 microg of cellular type III collagen (120 microg of procollagen) per 5 X 10(6) cells in monolayer culture and up to 40 mg/liter of cellular type III collagen (60 mg/liter procollagen) in suspension. The 4-**hydroxyproline** content and Tm of the purified **recombinant** type III collagen were very similar to those of the nonrecombinant protein, but the **hydroxylysine** content was slightly lower, being about 3 residues/1000 in the former and 5/1000 in the latter.

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(FILE 'HOME' ENTERED AT 06:43:48 ON 15 JUL 2006)

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 06:44:04 ON 15 JUL 2006

L1 23676 S VAUGHAN?/AU OR GALANIS?/AU OR RAMSHAW?/AU OR WERKMEISTER?/AU
 L2 430 S L1 AND COLLAGEN
 L3 16 S L2 AND ARTIFICIAL
 L4 13 DUP REM L3 (3 DUPLICATES REMOVED)
 L5 922 S COLLAGEN(3A) ARTIFICIAL
 L6 21 S L5 AND RECOMBINANT
 L7 15 DUP REM L6 (6 DUPLICATES REMOVED)
 L8 485 S COLLAGEN(S)CHIMER?
 L9 226 DUP REM L8 (259 DUPLICATES REMOVED)
 L10 60 S L9 NOT PY>1996
 L11 3613 S COLLAGEN(S)RECOMBINANT
 L12 1480 DUP REM L11 (2133 DUPLICATES REMOVED)
 L13 424 S L12 NOT PY>1996
 L14 355 S L13 NOT PY>1995
 L15 31 S L13 AND HYDROXY?

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